AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): A set of digital antibodies, wherein the set comprises at least about 15 digital antibodies, wherein each digital antibody binds a different epitope, and wherein each digital antibody binds an epitope consisting of 3 consecutive amino acids, or 4 consecutive amino acids, and wherein each digital antibody recognizes a plurality of proteins that comprise the epitope to which the antibody binds.

Claim 2 (original): The set of digital antibodies according to claim 1, wherein the set comprises 100 digital antibodies that bind epitopes consisting of 3 consecutive amino acids.

Claim 3 (original): The set of digital antibodies according to claim 2, wherein the set further comprises 100 digital antibodies that bind epitopes consisting of 4 consecutive amino acids.

Claim 4 (original): The set of digital antibodies according to claim 3, wherein the set further comprises 100 digital antibodies that bind epitopes consisting of 5 consecutive amino acids.

Claim 5 (original): The set of digital antibodies according to claim 1, wherein the set comprises at least about 100, 200, 300, 400, 500, 600, 700 800, 900, or 1000 digital antibodies.

Claim 6 (original): The set of digital antibodies according to claim 1, wherein the set comprises at least 1000 digital antibodies that bind epitopes consisting of 4 consecutive amino acids.

Claim 7 (original): The set of digital antibodies according to claim 6, wherein the set further comprises at least 100 digital antibodies that bind epitopes consisting of 5 consecutive amino acids.

Claim 8 (original): The set of digital antibodies according to claim 7, wherein the set further comprises at least 100 digital antibodies that bind epitopes consisting of 3 consecutive amino acids.

Claim 9 (original): The set of digital antibodies according to claim 1, wherein the digital antibodies are immobilized on a surface.

Claim 10 (original): The set of digital antibodies according to claim 4, wherein the digital antibodies are immobilized on a surface.

Claim 11 (original): The set of digital antibodies according to claim 9 or 10, wherein the surface is an array.

Claim 12 (original): A method for generating a protein binding profile, said method comprising:

(a) contacting a sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(b) optionally removing unbound protein; and

(c) detecting binding of protein to antibodies, whereby a protein binding profile is generated.

Claim 13 (original): The method of claim 12, wherein the method further comprises the step of treating the sample with a protein cleaving agent prior to step (a) of contacting the sample with the set of digital antibodies under conditions that permit binding.

Claim 14 (original): A method for generating a library of protein binding profiles, said method comprising:

(a) contacting a sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(b) optionally removing unbound protein;

(c) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(e) repeating steps (a) through (c) with at least two samples.

Claim 15 (original): The method of claim 14, wherein the method further comprises the step of treating the sample with a protein cleaving agent prior to step (a) of contacting the sample with the set of digital antibodies under conditions that permit binding.

Claim 16 (original): A library of protein binding profiles, wherein the library is prepared using the method of claim 14.

Claim 17 (original): A method for characterizing a test sample, said methods comprising

(a) contacting the test sample with the sets of digital antibodies according to claim 1 under conditions that permit binding;

(b) optionally removing unbound protein;

(c) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(d) comparing the protein binding profile of the test sample with the protein binding profile of a reference sample, whereby the test sample is characterized by the comparison.

Claim 18 (original): The method of claim 17, wherein step (d) of comparing is with a library of protein binding profiles, wherein the library of protein binding profiles is generated using a method comprising:

(i) contacting a sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(ii) optionally removing unbound protein;

(iii) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(iv) repeating steps (i) through (iii) with at least two samples.

Claim 19 (original): A method for determining presence or absence of a bacteria, virus, or cell in a sample, said method comprising

(a) contacting the test sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(b) optionally removing unbound protein;

(c) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(d) comparing the protein binding profile of the test sample with the protein binding profile of a reference sample, whereby presence or absence of the bacteria, virus or cell in the test sample is determined by the comparison.

Claim 20 (original): The method of claim 19, wherein step (d) of comparing is with a library of protein binding profiles, wherein the library of protein binding profiles is generated using a method comprising:

(i) contacting a sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(ii) optionally removing unbound protein;

(iii) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(iv) repeating steps (i) through (iii) with at least two samples.

Claim 21 (original): A method for identifying a bacteria, virus, or cell, said method comprising

(a) contacting the test sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(b) optionally removing unbound protein;

(c) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(d) comparing the protein binding profile of the test sample with the protein binding profile of a reference sample, whereby the bacteria, virus or cell in the test sample is determined by the comparison.

Claim 22 (original): The method of claim 21, wherein step (d) of comparing is with a library of protein binding profiles, wherein the library of protein binding profiles is generated using a method comprising:

(i) contacting a sample with a set of digital antibodies according to claim 1 under conditions that permit binding;

(ii) optionally removing unbound protein;

(iii) detecting binding of protein to antibodies, whereby a protein binding profile is generated; and

(iv) repeating steps (i) through (iii) with at least two samples.

Claim 23 (previously presented): A method for identifying a test protein, said method comprising

(a) contacting a sample comprising the test protein with the set of digital antibodies according to claim 1 under conditions that permit binding;

(b) optionally removing unbound protein;

(c) detecting presence or absence of binding of the test protein to antibodies in the set, wherein at least about six digital antibodies bind the test protein; wherein presence of binding indicates presence of at least about six epitopes in the test protein, wherein the identity of the at least about six epitopes is used to identify the test protein.

Claim 24 (previously presented): The method of claim 23, wherein at least about 7, about 8, about 9, about 10, about 11, about 12, about 13, about 14, about 15, about 20, or, about 25 digital antibodies bind the test protein.

Claim 25 (original): The method of any of claims 12, 14, 17, 19, 21, or 23, wherein the sample comprises cellular protein or a subfraction of cellular protein.

Claim 26 (original): The method according to any of claims 12, 14, 17, 19, 21, or 23, wherein the sample is of a cell or virus.

Claim 27 (original): The method of any of claim 17, 19, 21, or 23, wherein the method further comprises the step of treating the sample with a protein cleaving agent prior to step (a) of contacting the sample with the set of digital antibodies under conditions that permit binding.

Claim 28 (original): A kit comprising the set of digital antibodies according to claim 1.

Claim 29 (previously presented): A set of digital antibodies according to claim 1, wherein the set comprises at least about 100 digital antibodies.

Claim 30 (previously presented): A kit comprising the set of digital antibodies according to claim 29.